

POLYCARBOSILANE ETCH STOPS IN INTERCONNECT STRUCTURES

ABSTRACT OF THE DISCLOSURE

Interconnect structures having buried etch stop layers with low dielectric constants and methods relating to the generation of such buried etch stop layers are described herein. The inventive interconnect structure comprises a buried etch stop layer comprised of a polymeric material having a composition $\text{Si}_v\text{N}_w\text{C}_x\text{O}_y\text{H}_z$, where $0.05 \leq v \leq 0.8$, $0 \leq w \leq 0.9$, $0.05 \leq x \leq 0.8$, $0 \leq y \leq 0.3$, $0.05 \leq z \leq 0.8$ for $v+w+x+y+z=1$; a via level interlayer dielectric that is directly below said buried etch stop layer; a line level interlayer dielectric that is directly above said buried etch stop layer; and conducting metal features that traverse through said via level dielectric, said line level dielectric, and said buried etch stop layer.